

IN THE CLAIMS:

1. (Currently Amended) A quasi slanted fiber Bragg grating comprising a ~~first~~ refractive index grating portion, formed on the core of an optical fiber having a principal axis, to have a grating vector slanted with respect to the fiber principal axis to thereby ~~thereby to~~ reflect incident light selectively with a reflection factor of 90 % or more and to make the loss due to the coupling to a clad mode, less than 5 dB.

2. (Currently Amended) A quasi slanted fiber Bragg grating comprising a ~~second~~ refractive index grating portion formed on the core of an optical fiber to have a grating vector slanted with respect to the fiber principal axis to thereby ~~thereby to~~ reflect incident light selectively with a reflection factor of 10 % or more and to make the loss due to the coupling to a clad mode, 5 dB or more.

3. (Currently Amended) A multiple series fiber Bragg grating comprising:  
a first refractive index grating portion, formed on the core of an optical fiber having a principal axis, to have a grating vector slanted with respect to the fiber principal axis to thereby reflect incident light selectively with a reflection factor of 90 % or more and to make the loss due to the coupling to a clad mode, less than 5 dB;

a second refractive index grating portion formed on the core of an optical fiber to have a grating vector slanted with respect to the fiber principal axis to thereby reflect incident light selectively with a reflection factor of 10 % or more and to make the loss due to the coupling to a clad mode, 5 dB or more;

a third refractive index grating portion formed on the core of an optical fiber to have a grating vector in parallel with the fiber principal axis thereby to reflect incident light selectively with a reflection factor of substantially 100 % or more and to make the loss due to the coupling to a clad mode, less than 5 dB; and

a fourth refractive index grating portion having a grating vector slanted with respect to the fiber principal axis to thereby reflect incident light selectively with a reflection factor less than 10 % and to make the loss due to the coupling to a clad mode, 5 dB or more

~~——and at least any one of such a fourth refractive index grating portion, the first refractive index grating portion of Claim 1 and the second refractive index grating portion of Claim 2 formed in series with the third refractive index grating portion, wherein the fourth refractive index grating portion has a grating vector slanted with respect to the fiber principal axis thereby to reflect incident light selectively with a reflection factor less than 10 % and to make the loss due to the coupling to a clad mode, 5 dB or more.~~

4. (Currently Amended) A multiple series fiber Bragg grating according to claim 3 wherein said ~~comprising the fourth refractive index grating portion is of Claim 3~~ formed in the core of an optical fiber; and wherein at least any one of said the first refractive index grating portion, said ~~of Claim 1, the second refractive index grating portion and~~ said ~~of Claim 2, the third refractive index grating portion is of Claim 3 and the fourth refractive index grating portion of Claim 3~~ formed in series with said ~~the fourth refractive index grating portion.~~

5. (Currently Amended) A multiple series fiber Bragg grating according to claim 3 wherein comprising: ~~the first refractive index grating portion of Claim 1 formed in the core of an optical fiber; and at least any one of said second the first~~ refractive index grating portion, said third of Claim 1, ~~the second refractive index grating portion, and said of Claim 2, the third refractive index grating portion of Claim 3 and the fourth refractive index grating portion is of Claim 3 formed in series with said the first~~ refractive index grating portion.

6. (Currently Amended) A multiple series fiber Bragg grating according to claim 3 wherein comprising: ~~the second refractive index grating portion of Claim 2 formed in the core of an optical fiber; and at least any one of said the first~~ refractive index grating portion of Claim 1, said the second refractive index grating ~~portion of Claim 2, the third refractive index grating portion, and said of Claim 3 and the fourth refractive index grating portion is of Claim 3 formed in series with said the second~~ refractive index grating portion.

7. (Currently Amended) A multiple series fiber Bragg grating according to claim 10 wherein said comprising: ~~the first refractive index grating portion or said of Claim 1 or the second refractive index grating portion has a first of Claim 2 having a predetermined slant angle; wherein the other of said and formed in the core of an optical fiber; and the first refractive index grating portion and said or the second refractive index grating portion has having a slant angle of an inverse sign opposite to that of the first- predetermined first-named slant angle; and wherein said formed in series with the first~~

refractive index grating portion and said ~~or the~~ second refractive index grating portion are formed in series.

8. (Currently Amended) An optical fiber type coupler comprising a port, wherein said port includes ~~either the quasi slanted fiber Bragg grating of Claim 1 or Claim 2, or anyone of the multiple series fiber Bragg gratings of Claim 3 to Claim 7.~~

9. (Currently Amended) An optical connector comprising ~~either the quasi slanted fiber Bragg grating of Claim 1 or Claim 2, or anyone of multiple series fiber Bragg gratings of Claim 3 to Claim 7 packaged therein.~~

10. (New) A multiple series fiber Bragg grating comprising:

a first refractive index grating portion, formed on the core of an optical fiber having a principal axis, to have a grating vector slanted with respect to the fiber principal axis to thereby reflect incident light selectively with a reflection factor of 90 % or more and to make the loss due to the coupling to a clad mode, less than 5 dB; and

a second refractive index grating portion formed on the core of an optical fiber to have a grating vector slanted with respect to the fiber principal axis to thereby reflect incident light selectively with a reflection factor of 10 % or more and to make the loss due to the coupling to a clad mode, 5 dB or more.

11. (New) An optical fiber type coupler comprising a port, wherein said port includes the quasi slanted fiber Bragg grating of Claim 2.

12. (New) An optical connector comprising the quasi slanted fiber Bragg grating of Claim 2.

13. (New) An optical fiber type coupler comprising a port, wherein said port includes the multiple series fiber Bragg grating of Claim 3.

14. (New) An optical connector comprising the multiple series fiber Bragg grating of Claim 3 packaged therein.

15. (New) An optical fiber type coupler comprising a port, wherein said port includes the multiple series fiber Bragg grating of Claim 10.

16. (New) An optical connector comprising the multiple series fiber Bragg grating of Claim 10 packaged therein.